TheGMS
The Gazette of Medical Sciences
https://www.thegms.co ISSN 2692-4374 DOI https://www.doi.org/10.46766/thegms

Public Health | Review

COVID-19 and the Unraveling of Experimental Medicine - Part II

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Submitted: 28 February 2022
Approved: 09 March 2022
Published: 10 March 2022

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How to cite this article: Thorp KE, Thorp JA, Thorp EM. COVID-19 and the Unraveling of Experimental Medicine - Part II. G Med Sci. 2022; 3(1):074-106. https://www.doi.org/10.46766/thegms.pubheal.22022804

Abstract

In the second part of our trilogy, we begin by examining social policies sponsored by the science community and enacted by policy-makers to curtail the dynamics of the COVID-19 pandemic. Containment /mitigation strategies such as lockdowns came at great social and economic costs and yet failed to meaningfully impact the spread and evolution of the SARS-CoV-2 virus. Evidence suggests the social fallout alone from such strategies exceeded the morbid sequelae of the pandemic itself. We then examine the logic driving the one and only strategy advanced by the science community, i.e., vaccination, to neutralize SARS-CoV-2 and induce herd immunity. Evidence overwhelmingly points in but one direction: the mRNA vaccines were an unqualified failure. They neither halted viral spread nor conferred herd immunity and, in their wake, spawned a laundry list of disabling side effects. We point to a 40-fold increase in adverse event reports compared to trivalent influenza vaccines in the years preceding the pandemic. Medical science must now confront the possibility of yet another mass casualty event which, in all likelihood, will surpass any of the pharmacologically-induced disasters of the 20th century.

Keywords: COVID-19, herd immunity, natural immunity, social policies, vaccine effects in pregnant women and women of child-bearing age, Pregnancy loss, Menstrual abnormalities

Introduction

In the first part of the article, we examined a flood of evidence that has emerged from the COVID-19 pandemic exposing grave flaws in 20th century immune theory and effectively rendering it obsolete. Most of the incriminatory facts involve interpretational matters raised in the closing decades of the 19th and early 20th centuries that were never properly adjudicated by the science community. Other issues involve recent observations that either contradict or are unexplainable on the basis of current immune theory. At this point in the pandemic science is long on description and short on explanation.

In this second part we extend our line of inquiry into the dynamics of the pandemic to examine social measures enacted by countries across the globe intended to curtail spread of the virus and to favorably impact evolution of the pandemic. We then examine the logic driving the one and only strategy advanced by the science community, i.e., vaccination, to neutralize SARS-CoV-2 and induce herd immunity. Finally, we examine the spiraling number of adverse events reported incident to the introduction of the vaccines in early 2021 that raise serious questions as to their efficacy and safety. Emerging evidence points to a tragic miscalculation on the part of medical scientists.

Social Influences

The first cases of COVID-19 were reported in Wuhan, China near the end of December 2019 and within weeks SARS-CoV-2 infections had spread across the globe. By early March 2020 the World Health Organization declared it to have reached pandemic status. Once in full swing the pandemic was destined to run its course until a widespread state of resistance to the virus, i.e., herd immunity, gained foothold in the population. Societies across the globe faced a twofold dilemma: how to find the quickest and safest path to herd immunity and to minimize adverse social consequences in its wake.

The pandemic stirred unprecedented debate in political, public health, research and medical circles as to potential strategies while at the same time calling into question long-held beliefs about the nature of herd immunity and how it must be approached.

Herd immunity is a hypothetical threshold said to occur when the fraction of susceptible individuals in a population is small enough (or widely enough separated) to interrupt the chain of viral transmission and prevent or mitigate person-to-person spread. It requires that a critical number—not all—of individuals develop resistance to a particular viral subtype.

Once this threshold is reached, local outbreaks, i.e., epidemics, may occur among susceptible individuals in particular regions, as with influenza, but there is insufficient susceptibility in surrounding areas to sustain transmission. In this state of affairs, the virus is said to be endemic and humans its permanent reservoir. Mathematical models suggest that such collective resistance requires up to 70% of the population but this is supposition.

From the onset many argued that mass vaccination was the safest and most efficient means by which to attain herd immunity. Wide-scale immunization of the population, it was argued, would affect the soonest return to normalcy. Scientists had developed what appeared to be a suitable candidate in the mRNA vaccines which, due to technological breakthroughs, could be ready for mass implementation in a fraction of the time of conventional vaccines. But such views were not universally shared [1-9].

Others argued there were too many potential stumbling blocks with this strategy. Achieving herd immunity through vaccination would not only require vaccines to be highly effective in blocking person-to-person transmission but to confer reasonable long-term immunity. The less effective the vaccine, the higher the percentage of the population that would require vaccination. And how should the issue of vaccine hesitancy be overcome? It was not at all clear the new vaccines could live up to the challenge [10-13].

The logistics of the vaccine roll-out presented another serious obstacle. Ideally, to interrupt transmission dynamics would require the largest number of individuals to be immunized in the shortest period of time. Stretching out the length of the vaccination window or, conversely, preferentially focusing on certain at-risk groups such as the elderly and infirm, would permit continued unchecked spread through the rest of the population and potential emergence of new variants. In the final analysis mass vaccination was a desperate race against time. In spite of these concerns scientists bet the farm on the new mRNA vaccines.

Given the imperatives in late-winter 2020, and the unlikelihood of any suitable vaccines for at least a year, societies were obliged to implement strategies to limit viral spread and mitigate collateral damage not only to individuals but social systems. This resulted in a handful of measures that were inconsistently applied across the globe leading to variable and disproportionate results. Such disparities are best seen by comparing two dominant policy models: the relaxed recommendation-based mitigation strategy enacted by Sweden and draconian mandated strategies implemented by neighboring countries like Denmark and Norway as well as most European countries, the US, Canada, Israel, and Australia.

Part and parcel with either approach was recognition of the highly fluid nature of the pandemic and the necessity of closely monitoring emerging regional and global trends. Consequently, a handful of information gathering practices were widely implemented such as contact tracing, genomic surveillance for emergent variants, polymerase chain reaction (PCR) testing, and antibody detection methods, intended to chart evolution of the pandemic. In part 1 of this series, we pointed out the sheer impossibility of containment of viral spread or of accurately assessing the true number of cases in a population. Such methods

Thorp KE, Thorp JA, Thorp EM. COVID-19 and the Unraveling of Experimental Medicine - Part II. G Med Sci. 2022; 3(1):074-106.
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gave scientists and policy-makers an illusion of control but did little to affect outcomes.

Sweden pursued a default herd immunity approach aimed at slowing, but not stopping, viral spread so as to preserve social freedoms and economic stability especially the wage-earning capacity of its citizens [14]. There were no lockdowns or shuttering of businesses; social distancing in public spaces like churches, restaurants and stores was advised but not mandatory; face-masking was not recommended except in health care settings; visits to high-risk venues such as nursing homes and convalescent facilities were prohibited; public schools for children up to 16 years old were kept open while high schools and universities were closed for three months; there were no enforced quarantines for infected individuals or regions.

In March 2020, when social measures were implemented, the per capita number of COVID-19 cases in Norway, Denmark, and Sweden were roughly similar. Within ten days after initiation of the March 2020 lockdown beneficial effects became apparent in Norway and Denmark with dropping caseloads. Thereafter Sweden's infection rate began to diverge markedly from its neighbors. Sweden had a higher incidence of infection across all ages as well as COVID-19-related death rate that could not be explained on the basis of demographic factors such as cultural practices, population size or density, or case reporting. Throughout the remainder of 2020 Sweden continued to have the highest positive test rates. Results can only be explained on the basis of different social policies enacted in response to the pandemic [15-18].

The main difference between the three countries was implementation of laws and mandates in Denmark and Norway that enabled stricter policy measures instead of laissez-faire guidelines. And rather than anticipating the second wave in the Fall of 2020 and ramping up social measures the Swedish Government instead loosened restrictions on public gatherings. During the second wave Swedish infection and death rates again far outpaced that of its neighbors.

By the end of December 2020, COVID-19 deaths in Sweden had reached over 8000, or 787 deaths/1 million inhabitants, about 5-10X higher than its neighbors [19]. These figures were still below countries like Belgium, Italy and Spain that had implemented strict lockdown policies and were also in the midst of devastating caseload surges [20]. But while the rest of Europe plunged into deep economic malaise in the second half of 2020 and early 2021, Sweden emerged relatively unscathed [21].

The numbers were even more telling by late 2021: by this time Sweden had registered about 1.16 million COVID-19 cases and over 14,900 deaths, far above those of Norway and Denmark. At this same time Norway, for example, had 193,000 confirmed cases and only 871 deaths. When adjusted for population size the number of cases was 5-fold higher, and the number of deaths 12-fold higher, in Sweden than in Norway [22, 23]. The COVID-19 pandemic stressed the Swedish health care system to its limits and exposed grave flaws in policy-making strategies. Many argued that its laissez-faire approach and lack of will to implement more stringent measures led to the large excess of morbidity and mortality in the population [24].

Lockdowns, on the other hand, mandated in-place confinement except for vital necessities like food and medical treatment. Non-essential businesses like restaurants and bars as well as churches, schools and universities were closed; travel bans in conjunction with border closings were implemented; social-distancing and mask-wearing outside the home was mandated; PCR testing was strongly recommended and active infections as well as individuals who tested positive were required to self-quarantine for up to 10 days.

It is curious such strategies were enacted with so little public deliberation for as recent as 2006 scientific reviews had concluded that such measures were largely ineffective in controlling viral transmission or altering the course of pandemics during 20th century influenza outbreaks [25-27]. Multiple studies, for example, had pointed to the inadequacy of standard protective masks in preventing spread of infection [28-34].

The lockdown strategy, implemented in the Spring of 2020 throughout much of the globe, brought quick though transitory results. Proponents were quick to highlight significant decreases in the number of reported infections beginning as early as 10 days post-lockdown and argued that they saved lives without inflicting significant harm upon the economy [35-38]. But in most cases such beneficial curve-flattening effects were temporary since they did not confer immunity or impact populational resistance and, ultimately, relied on subsequent introduction of an effective vaccine to prove their worth. Such beneficial short-term results, however, came with staggering economic and social costs.

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By mid-2020, months into lockdown, the emerging economic picture looked bleak. In the US widespread public fear led to a massive shift in consumer spending with contraction of the economy by 10.1% by the end of June. The situation was little different elsewhere. An analysis from Cambridge University's Centre for Risk Studies pegged the 5-year global damage at $26.8 trillion with a worst-case scenario of $82 trillion. Social fallout from the lockdown was even more disturbing [39-41].

A November, 2020 report by the American Institute for Economic Research highlighted a litany of adverse consequences stemming from lockdowns: unemployment in the US increased to 14.7% in April 2020 after introduction of the lockdown, the largest increase in recorded history; about 31% of adults reported their families could not pay rent, mortgage, or utility bills; drastic increases in food insecurity, particularly among children; steep climbs in under-nourishment; increases in extreme poverty rates both in the US and globally; decreases in public school enrollment and attendance along with higher rates of failing grades; staggering increases in substance abuse and drug overdose deaths; large increases in the number of children and adults with mental health complaints like anxiety and depression; increased emergency room visits and admissions to mental health hospitals; increased suicide and suicidal ideation among all sectors but especially in the 18-24 year-old range; rising obesity rates among children and adults [42]. Numerous other reports documented similar trends [43-61].

In early 2022 a meta-analysis of 24 studies examining the effects of the various social policies enacted at the governmental level was released. The policies were stratified on the basis of 3 differentials: lockdown stringency index, shelter-in-place-orders, and non-pharmacological interventions such as social distancing and mask wearing. Authors concluded that lockdowns in Europe and the US were ineffective and only reduced COVID-19 mortality by 0.2%. Shelter-in-place policies reduced mortality by about 2.9%. There was no evidence that non-pharmacological interventions had any impact on COVID-19 death rates. Given that none of these interventions affect individual resistance to SARS-CoV-1 such results are hardly surprising [62].

Despite releasing a position paper in 2019 which found insufficient evidence in support of many of the enforced measures, the World Health Organization (WHO) became a leading proponent for global lockdowns in the Spring of 2020 and then, in another abrupt turnaround, reversed its position six months later [63]. In mid-October WHO issued a statement calling for their elimination [64]. Reviewing the impact of lockdowns on social and economic life in Canada, one writer claimed it was one of the great policy failures in Canadian history [65].

The two widely-divergent social strategies, introduction of draconian mandated social policies or laissez-faire pro-commerce measures, point to one broad conclusion: natural disasters like pandemics are zero sum affairs in which no winners—only survivors—emerge. Whether or not interventions are applied there are inevitable trade-offs that oblige choosing between individual lives or collective social life.

In the days preceding the writing of this section Ireland relaxed its COVID-19 restrictions after nearly two years. Prime Minister Michael Martin commented: 'As we look forward to this spring, we need to see each other again; we need to see each other smile; we need to sing again' [66]. Likewise, England dropped virtually all of its restrictions which Prime Minister Boris Johnson attributed to 'The extraordinary [vaccine] booster campaign, together with the way the public have responded' [67].

Herd Immunity Versus Herd Mentality

In early January, 2021, a glowing editorial entitled 'Messengers of Hope' appeared in Nature Biotechnology at the beginning of the COVID-19 vaccine roll out [68]. Clinical trials had concluded that the vaccines 'worked spectacularly.' The riskiest and most ill-advised experiment in medical history was underway.

'By January 2022,' the article presaged, 'we will know whether the promise is realized.' Hundreds of millions of people will have been vaccinated and a flood of data from all corners of the globe will provide a clearer picture of their effectiveness. Many burning issues, whether they offer long-term protection, whether asymptomatic vaccinated individuals are capable of transmission and, most importantly, safety questions, will have been answered. 'For now, though,' it concluded, 'these vaccines represent a new hope: the beginning of the end for this pandemic — and the advent of a new era in vaccinology.'

Although based on Emergency Use Authorization measures the vaccines had received insufficient critical scrutiny, researchers were strongly encouraged by preliminary

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data: efficacy for BioNTech/Pfizer's BNT162b2 one week after the second dose in 20,033 subjects was pegged at 95% while that of Moderna's mRNA-1273 vaccine in 13,218 people after two doses was 93.4% in individuals 18-64 years old and 86.4% above that age. Side effects were said to be generally mild and rare [69, 70]. Who would argue with such results? Some did.

Various writers responded that the widely used term 'efficacy' exaggerated true vaccine benefit [71]. Efficacy and effectiveness are not the same. Efficacy, reported as relative risk reduction, is the difference in attack rate between two groups, expressed as the ratio between those who received the vaccine and those who didn't subtracted from one (1—RR). Relative risk reduction, gleaned from clinical trials with ideal test subjects, is insensitive to real world conditions. Absolute risk reduction, conversely, attempts to quantify what happens when vaccines are introduced into heterogenous, complex real-life situations.

Vaccine manufacturers often ignore absolute risk reduction because it gives less impressive, though more accurate, outcome assessments compared to relative risk rate: BioNTech/Pfizer's BNT162b2 vaccine is only about 0.84% and the Moderna mRNA-1273 only about 1.2% effective. Translated into practice these figures indicate that in order to prevent one COVID-19 infection 119 people would have to be treated with the BNT162b2 vaccine and 81with the mRNA-1273 vaccine. Such numbers paint a starkly different picture of the vaccine's ability to provide populational protection against COVID-19. As a corollary, the lower the effectiveness of the vaccine the higher the percentage of the population must be vaccinated in order to attain herd immunity.

Red flags began to pop up in late June 2021 in Israel when daily cases for the newly emergent Delta variant jumped to more than double what they had been two months earlier. Israel had the swiftest rollout and by this time nearly 60% of the population had received two doses of the vaccine [72]. Shortly before the outbreak a study had affirmed the effectiveness of the vaccine in preventing SARS-CoV-2 infections. Hospitalizations and death in all segments of the population had flatlined [73].

The Delta variant, first identified in India in late 2020, spread rapidly across the globe producing marked caseload surges and hospitalizations in many countries, even in those with lockdowns in effect. One report described 469 infections in Barnstable, Massachusetts secondary to large public gatherings 90% of which were due to Delta and 74% of which were in fully vaccinated individuals [74]. Another described a large Delta variant outbreak in Vietnam among fully vaccinated healthcare workers which was associated with high viral loads, prolonged PCR positivity, and low levels of vaccine-induced neutralizing antibodies [75].

The Delta variant was twice as contagious as earlier subtypes and more likely to produce severe illness. It soon became dominant worldwide, accounting for up to 99% of infections in some areas, and raised eyebrows among watchdog agencies and policy-makers. An internal CDC document, reported in the *Washington Post*, concluded that as the proportion of vaccinated persons increased, so too would the number of breakthrough infections. It described 'communication challenges' that must be addressed in order to prevent deterioration of public confidence. It advised that in future updates breakthrough infections should be described as 'rare' or as a 'small percentage' of cases. The high risk of infection and adverse outcomes in unvaccinated people should be emphasized [76].

By early August 2021 the Public Health England survey had documented 151,054 Delta cases in unvaccinated individuals with 2960 leading to ED visits (1.9%) and 253 deaths (0.17%). There had been 47,008 cases in fully vaccinated persons resulting in 1355 ED visits (2.8%) and 402 deaths ((0.86%). For the total number of infections in unvaccinated individuals resulting in ED visits the death rate thus approximated 8.5%; in vaccinated people the corresponding rate was 29.7%, about a 3-4-fold increase. Such data raises questions as to the protection conferred by the vaccines [77].

A study based on reported data from the White House COVID-19 Team from two consecutive 7-day periods mid-August and early September 2021 cast even more uncertainty on the performance of the vaccines. It had been roundly assumed that high global infection rates were being driven by low vaccination rates in certain regions but new data challenged this assumption [78]. In the period of observation, Israel, with over 60% of its population fully vaccinated, had the highest COVID-19 per capita caseload. Iceland and Portugal, with over 75% vaccinated, had more per capita COVID-19 cases than either Vietnam or South Africa in which only about 10%

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were fully vaccinated. Similar weekly trends were seen in the US.

Based on CDC data, four of the top five counties in the US with the highest vaccinated percentages, ranging from 84.3-99.9%, were high transmission areas while, at the other end of the spectrum, 57 low transmission counties had markedly lower vaccination rates, in some cases, less than 20%. No associations between higher vaccination rates and decreased COVID-19 infection rates were apparent, authors concluded that, given the likelihood of emergence of new variants, the strategy of sole reliance on vaccination to mitigate COVID-19 should be reexamined. Nonetheless governments and health agencies across the globe began discussing the need for booster doses to supplement protection.

By early September Denmark's vaccination rate had reached 80% and its infection rates were among the lowest in the world. On September 10 the government lifted all social restrictions declaring that COVID-19 was no longer a 'socially critical' disease [79]. The relaxation measure was premature. By late October the Omicron variant had emerged and Denmark's caseload was surging forcing reintroduction of restrictions [80]. November surges were also seen in other highly vaccinated countries like Ireland and Iceland [81, 82].

By late November caseloads across the US were surging as well, especially in Vermont, Rhode Island, Maine, Connecticut and Massachusetts, the five most heavily vaccinated states. The Biden administration advised all people over 50 get booster jabs [83]. In December Cornell University reported 903 cases in less than a week among students the majority of which were due to Omicron. Virtually every case occurred in fully vaccinated students a portion of whom had also received a booster shot [84].

In early December Omicron infections exploded in England with cases doubling every 2-3 days forcing health agencies to issue warnings [85]. In late December Public Health England reported the number of Omicron-related infections in fully and partially vaccinated individuals had soared. In hospitalized patients only 20.5% of cases were unvaccinated. This indicates that the number of serious infections in vaccinated patients exceeded those in unvaccinated by over a 3:1 ratio [86].

Nor did Israel escape the Omicron surge. Over an 18-day period between late December and early January another wave hit Israel and the number of serious cases tripled sending hospitals into crisis. Although the unvaccinated represent only about 14% of the population they accounted for up to 50% of cases. Prime Minister Naftali Bennett warned of difficult weeks ahead [87].

After successfully containing viral spread for most of the pandemic with strict border measures, lockdown policies and high vaccination rates, Australia became the latest COVID-19 victim. After recently relaxing stringent social policies it experienced an Omicron surge around Christmas which, in subsequent weeks, skyrocketed to unprecedented levels. Australia's most populous state, New South Wales, had the most COVID-19 deaths in a single day since the beginning of the pandemic.

Another familiar theme emerged in Australia: blaming the unvaccinated. 'We know that unvaccinated people are well and truly, enormously, overrepresented when it comes to cases, serious illness, hospitalization, intensive care presentations and death,' claimed Mark McGowan, Premier of New South Wales, 'Far too many resources are being used . . . to care for individuals who would not take the basic steps to care for themselves.' Across the globe few public officials have stepped up to question vaccine effectiveness or safety [88].

On January 1, 2021 as the vaccines were rolling out, there were 572,602 new cases globally with a 7-day average of 605,625. On January 1, 2022, 1,178,934 new cases were reported with a 7-day average of 1,390,494 [89]. It would seem the results of the year-long mRNA vaccine experiment have become clear enough for all to see.

Natural Immunity

The reasons for the stunning rise in global caseload soon became clear. An Israeli study examining sera of breakthrough cases during the summer Delta surge found waning vaccine protection in all age groups within months after receiving the second dose [90]. Studies from other countries reported the same results not only for Delta but the Omicron variant as well. Breakthrough infections, illness, hospitalizations, and deaths continued to emerge in vaccine recipients [91-94]. This led many to advocate another round of booster initiatives. Others pointed to the inadequacy of public health data collection regarding the extent of breakthrough infections. The actual magnitude will likely never be known [95, 96].

Officials were quick to point out that vaccines still

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afforded protection but studies indicated this was highly dependent on age and morbidity status of recipients and, often, was no more than 25-50% of that seen in the weeks following administration. Evidence suggests a stepwise diminution in vaccine effectiveness with each new viral mutation, with Delta less than the Alpha variant and Omicron less than Delta [97-100]. Each emergent subtype is less responsive to the effects of the vaccine.

Reduced effectiveness of the vaccine is due to waning antibody levels as well as diminished antibody binding capacity. Studies confirm that neutralizing antibody levels correlate to the degree of protection conferred by the vaccine [101]. Sera collected from previously infected individuals up to 12 months after infection were fourfold less potent against Delta compared to the Alpha variant. Sera from vaccinated individuals had virtually no inhibitory effect on Delta [102]. Antibodies generated by the vaccine have been shown to have different binding affinities and specificities than those produced by natural infection [103].

Beyond antibody-related issues lies an equally grave flaw in the vaccines: while they confer temporary protection and enhance viral clearance, they do not alter transmission rates. Nasal swab specimens in fully vaccinated and unvaccinated subjects found no differences in infectious viral titers [104]. Individuals continue to shed the virus in spite of vaccination. Another study found no differences in viral titers between vaccinated and unvaccinated, symptomatic and asymptomatic individuals after infection with SARS-CoV-2 Delta [105]. A third found that while vaccination reduces infection risk it does not affect person-to-person spread within households [106].

Given that pro-vaccine arguments hinged on their ability to block transmission and confer long-term immunity, these findings point to primary vaccine failure. When the pandemic finally self-extinguishes, we can be certain that herd immunity will be reached not on the basis of the vaccine but due to the unvaccinated and to breakthrough infections in the vaccinated. In a broader sense this reflects upon the flawed 20th century immune theory which equated immunity with antibody response and overlooked the primacy of the cellular response and internal digestive system. This in turn points to the failure of the science community to properly resolve this question over the entire 20th century.

Breakthrough infections, which occur with increasing frequency as the time from vaccination increases, provide insight into the mechanisms behind long-term immunity. The overwhelming majority of breakthrough cases, up to 96%, are mild, with severe cases and death rare. This is related to early antibody production secondary to an anamnestic recall response to viral antigens mediated by memory B-cells. On the other hand, breakthrough infections are far more common in the elderly and in those with pre-existing comorbidities, particularly the immune compromised, which instead point to defects in phagocytosis and the internal digestive system [107-109].

Natural immunity confers stronger and more durable immune protection in persons with previous COVID-19 infection versus vaccine-mediated protection. In one study vaccinated but non-infected subjects had a 6-fold increased risk for breakthrough infection and a 7-fold increased risk for symptomatic disease compared to individuals with previous SARS-CoV-2 infection. And as the time from vaccination increased the disproportion rose to over 13-fold. Vaccinees were at greater risk for COVID-19-related-hospitalization [110-112].

Not only do previously COVID-19-infected subjects mount a rapid and strong antibody response to the viral spike protein upon subsequent challenge, they have long-lasting T- and B-cell responses that persist for up to 12 months [113-126]. Primary infection triggers increased interferon signaling leading to marked upregulation of cytotoxic genes in natural killer (NK) and other T-cell lines. The interferon system is a cellular communication pathway mediating the connection with macrophages in the interstitial fluid compartment [127-130].

Analysis of B- and T-cell responses indicates that the majority of lymphocyte clones were effector cells while clonal expansion in vaccinated individuals was mainly memory cells [131]. Natural infection primes long-term lymphoid responses in the nasopharynx which mitigates the asymptomatic carrier state [132, 133]. Such findings indicate a qualitatively superior cell-mediated immune response in previously infected individuals which persists long after antibody levels have waned. Evidence indicates that vaccination is unnecessary in previously COVID-19-infected individuals [134, 135].

In part I we cited multiple studies showing absent antibody production in 8.5-36% of COVID-19 positive individuals. Many cases of non-seroconversion are in younger individuals with mild symptoms suggesting dominance of

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the cellular immune response. But equally this suggests the likelihood of pre-existing innate immunity to SARS-CoV-2. One provocative study found that up to 40% of unexposed children and young adults had pre-existing cross-reactive serum antibodies and immunological memory the SARS-CoV-2 spike protein [136].

In another study, when cross-reactive SARS-CoV-2 antigens were mixed into sera of previously uninfected (but not necessarily unexposed) individuals, 81% demonstrated T-cell responses. Another study in non-seroconverter healthcare workers also documented pre-existing antigen-specific T-cell responses. Some have suggested that such early-expressed effector responses indicate repetitive exposures to very low levels of SARS-CoV-2 while others suggest cross-reactivity with other common coronavirus epitopes. Yet another study, however, concluded that prior exposure to human or animal coronaviruses cannot fully explain the pre-existing T-cell repertoire. Such evidence points directly to the primacy of cell-mediated innate immunity [137-140].

The most stunning example of such a pre-existing cellular immune repertoire was reported in the 1990s by Rowland-Jones et al. who studied 20 Gambian women who had been prostitutes for over 5 years and reported little condom usage or who had been long-term sexual partners with HIV-infected men. Despite such repetitive high-risk contact all of the women remained sero-negative over the 3-month period of observation with repeated negative viral cultures. All of the women had 'very vigorous' HIV-specific cytotoxic T-lymphocyte activity which authors speculated was responsible for protective immunity [141]. Authors published a similar study 3 years later in sero-negative Kenyan prostitutes who also demonstrated intense cytotoxic HIV-directed T-lymphocyte responses [142].

Despite the game-changing nature of these reports and their implication regarding immune function, scientists continue to plod through the antibody maze which is regarded by many to be the key component of immune function. Had this knowledge been synthesized into the extant immune theory, as we will see in the third part of our series, an entirely different line of treatments would have opened up for COVID-19 infections beyond the one-trick pony approach afforded by vaccines.

Messengers of Hope?

Within months of the rollout reports began to appear detailing a wide range of adverse effects occurring days to weeks after vaccination: arterial and venous thrombosis [143-146], heart attack [147, 148], yocarditis/pericarditis [149-152], stroke [153, 154], pulmonary embolism [155-158], seizures [159, 160], encephalomyelitis [161-170], Guillain-Barré syndrome [171-177], Bell's palsy [178-180], reactivation of viral infections [181-183], induction of autoimmune states or exacerbation of pre-existing autoimmune conditions [184-192], pregnancy complications [193], anaphylaxis, allergic reactions and lymphadenopathy [194-200], appendicitis [201] and sudden death [202]. In our search of the literature, we identified over 1,000 reports in peer-reviewed journals of various vaccine-associated adverse events.

The more commonly encountered reactions have been reviewed by oversight bodies such as the Advisory Committee on Immunization Practices (ACIP) in the US and, in all cases, were characterized as 'rare' or 'extremely rare' and not of sufficient magnitude to outweigh potential benefits [203-209]. In our perusal of such oversight papers, we were unable to find a single attempt to explain how or why vaccines give rise to such events. Because an event is rare does not mean it is without physiological significance. To better understand adverse reactions, we digress briefly to examine how mRNA vaccines differ from traditional vaccines.

The history of vaccines, from Edward Jenner onward, involves a simple principle: preserve antigenicity while minimizing pathogenicity. Jenner vaguely intuited this when he administered cowpox preparations to induce smallpox immunity. Louis Pasteur later capitalized on the idea of attenuation by exposing organisms to heat or chemicals to alter their virulence; others cultured virulent organisms over many life cycles on nutrient-deficient media to attenuate pathogenicity. Inactivated vaccines, on the other hand, employed cell coat antigens from killed whole bacteria or viruses; later modifications used antigenic fragments or extracts of microorganisms to stimulate the immune process [210, 211].

Conventional vaccines stimulate immunity by a single mechanism: the antigenic substance localizes in the interstitial fluid space and is ingested by macrophages; following intracellular breakdown, antigenic material

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is transferred from macrophages to antigen-presenting dendritic cells; antigen-presenting cells interact with T- and B-cells to stimulate antigen-specific lymphocyte responses which, in turn, are retained by memory cells and become part of the consolidated immune repertoire [212-221]. It is axiomatic that all antigen-antibody responses are mediated by protein-protein interactions and take place in the extracellular fluid space. mRNA vaccines employ a starkly different tactic [222, 223].

It was discovered in the early 1990s that intracellular injection of foreign mRNA induced protein synthesis but over the next decade further advances were hampered by immune-mediated inflammatory reactions and, outside a clique of advocates, there was little interest in capitalizing on this to create vaccines. Once in the interstitial fluid space nucleic acids are strongly immunogenic. Macrophages and PMN's possess RNA sensors and, under usual circumstances, it is rapidly ingested and degraded [224-227]. In autoimmune disease and COVID-19 infections, on the other hand, neutrophil extracellular traps (NETs) are laden with nucleic acids that cannot be degraded rapidly enough to keep pace with cellular destruction.

A breakthrough came in 2005 when Karikó et al found that alterations in the RNA base sequence, with insertion of pseudo-uridine, decreased the inflammatory response against mRNA. Cells exposed to such modified mRNA expressed fewer cytokines and, as an added benefit, produced more protein [228-231]. The next obstacle researchers faced was getting mRNA inside the cell. Because of their large size nucleic acids do not readily cross cellular membranes. The delivery problem was solved by coating mRNA with lipid nanoparticles which facilitate entry into the cell for protein translation [232, 233]. In their rush, however, scientists overlooked other potential problems.

mRNA vaccines are more energy-intensive than traditional vaccines: by initiating the immunogenic process intracellularly researchers added an extra step which, in susceptible individuals, promotes an energy deficit. Before immune cells can mount an antibody response, mRNA must first be read, spike protein synthesized, and then dispatched into the extracellular compartment, all of which are energy-dependent. In reality mRNA vaccines are more akin to actual viral infections or the prion diseases.

The second dubious strategy involves using the spike protein to stimulate the immune response. It is well-established that SARS-CoV-2 gains entry into cells by attachment of the spike protein to the ACE-2 receptor. The spike protein, however, is highly immunogenic and during COVID-19 infections inflammatory responses are more likely to occur in tissues (like the vascular endothelium) with a high density of ACE-2 receptors. The addition of RNA base analogs like pseudouridine, which boost spike protein synthesis, seems a bit risky in that the amount produced can neither be predicted nor controlled. Once released into the interstitial space there is, once again, the potential in susceptible individuals to overwhelm the phagocytic system. Why would researchers attempt to recreate the very conditions that induce pathologic sequelae to SARS-CoV-2 infection?

In the first part of our series, we established the existence of an organized blood-borne energy field generated by the systolic and diastolic motions of the heart. We provided evidence substantiating widespread endothelial inflammation, i.e., endotheliitis, during COVID-19 infections which, secondarily, leads to diastolic dysfunction and impaired energy generation. On this basis various investigators argue that the COVID-19 syndrome originates in cardiovascular system [234-241]. This being the case, as we have shown, all symptoms and pathologic processes must be regarded as manifestations of a primary energy deficit. It is significant in this respect that most vaccine-associated adverse events also occur in primary COVID-19 infections.

By Spring 2021 reports began to trickle in describing a rash of clotting disorders, both arterial and venous, occurring days to weeks following vaccination. Such events also occur in COVID-19 infections [242-244]. Arterial thromboses present as heart attack or stroke [245]. In addition to the more common venous thromboses in the lower extremities, vaccine-related clotting occurs in atypical locations like cerebral sinuses and intestinal veins [246-251]. **(Figure 1)** Venous thrombosis, in turn, leads to a higher incidence of pulmonary embolism [252]. **(Figure 2)** Such events prompted the temporary withdrawal of the J & J vaccine in Europe and the US.

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Figure 1. Left lower extremity deep vein thrombosis. History of COVID-19 infection and vaccination.

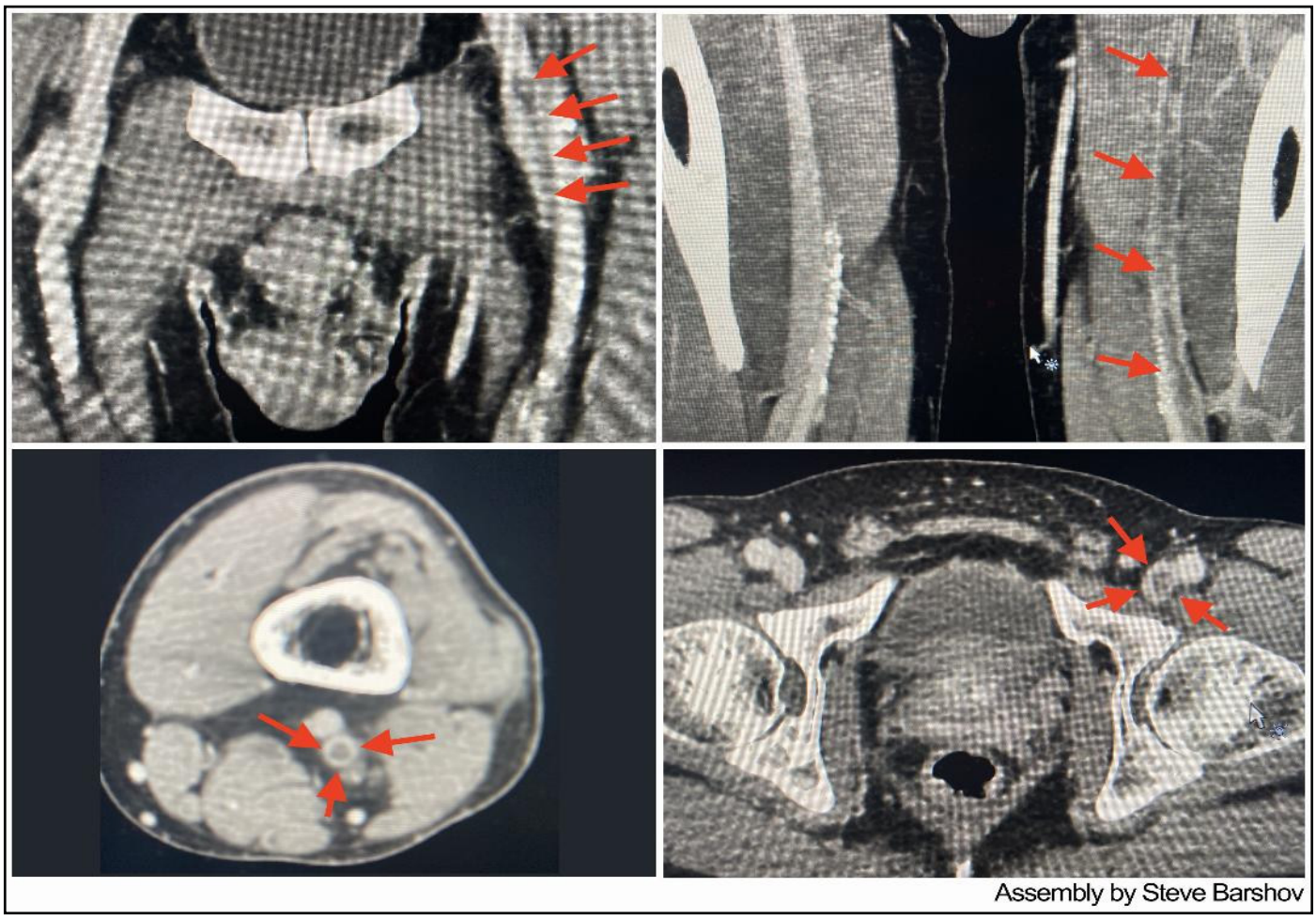
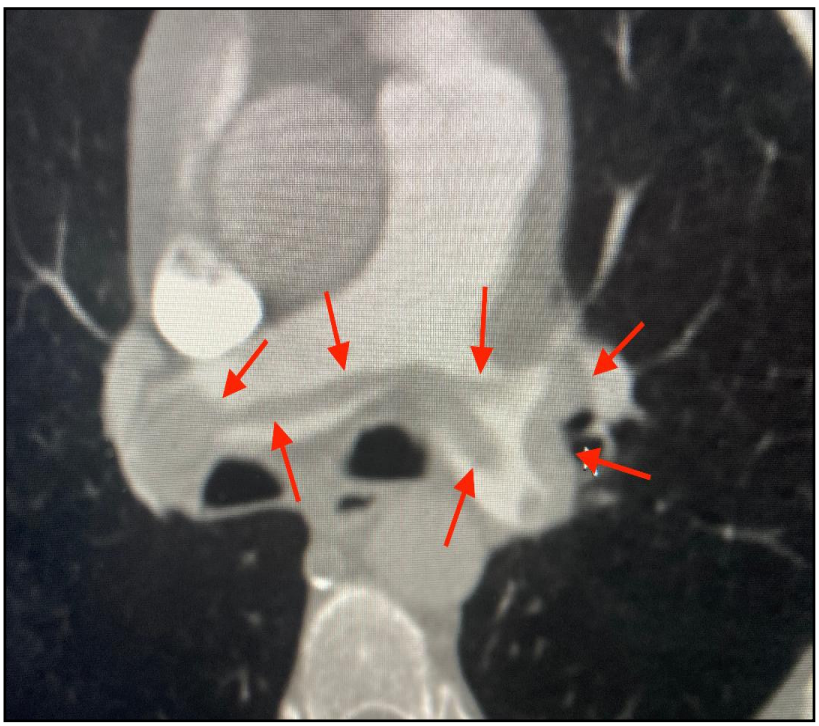


Figure 2. Large saddle embolus extending into right and left pulmonary arteries in a 49-year-old woman with history of vaccination, booster dose, and recent COVID-19 infection



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Laboratory data pointed toward an immune-mediated process. Thrombosis is associated with low blood platelet levels suggesting a consumptive process. Vaccine-induced thrombosis and thrombocytopenia (VITT) is strikingly similar to heparin-induced thrombocytopenia (HIT) in which administered heparin induces autoantibody formation against platelet factor-4 (PF4) [253, 254]. The heparin-PF4-immune complex triggers release of pro-thrombotic substances by platelets that induce clot formation throughout the vascular tree. In the process platelets are consumed which, subsequently, increases the risk for bleeding [255].

Platelet-activating antibodies against PF4 are present in VITT [256-261]. The same hypercoagulable conditions, with or without PF4 autoantibodies, are present in COVID-19 infections [262-265]. Besides triggering platelets to release pro-clotting factors, anti-PF4 antibodies induce neutrophils to release NETs which promote inflammation, immune-mediated thrombosis, and end-organ damage associated with both COVID-19 infection and HIT [266-269]. And, not surprisingly, NET formation also occurs in VITT [270-272]. The common thread that ties VITT and COVID-19-related thrombosis together is endothelial inflammation, diastolic dysfunction and impaired energy generation [273-274].

Given such evidence, we are again led to question the logic behind mRNA vaccines. Why would scientists continue to employ an agent that induces inflammation, immune dysfunction, and vascular thrombosis, the same pathophysiological effects as viral infection, while at the same time conferring only temporary protection that is qualitatively inferior to natural infection? One can only wonder.

Wicked Jabs

The Vaccine Adverse Event Reporting System (VAERS) is an early warning system set into place in the US by legislative decree in the late 1980s designed to call attention to injurious vaccine-related complications. Health care providers and the general public report adverse events which are registered in a central database monitored by the Centers for Disease Control. The system has been in operation since about 1990 and, in years before the pandemic, received up to 30,000 event reports per year of which about 5-10% are said to be serious.

As an open-ended surveillance tool intended to cast a wide net, VAERS falls prey to the same black box issues we ascribed to reporting of COVID-19 cases: data represent a numerator in an equation without a denominator. The accuracy of reports can never be verified. Finally, there is a built-in reporting bias with severe adverse events more likely to surface than mild ones. The true value of VAERS lies not in making quantitative assessments but, rather, in revealing clustering of uncommon events or highlighting the spectrum of adverse events associated with a given vaccine. VAERS data can thus spawn misinformation when used out of context.

Anti-vaxxers argue that adverse events are vastly under-reported in VAERS and that the reporting rate is only 1-10% of true incidence. While under-reporting of events is widely acknowledged it is impossible to accurately gauge the true extent. On the other hand, vaccine proponents point to the low adverse event rate and claim it to be non-significant. The truth is likely to be found somewhere between the two extremes. Instead of engaging in speculative arguments we will examine the data for ourselves.

According to the website OpenVAERS as of February 4, 2022, about 13 months after widescale vaccination was implemented, there had been 1,103,891 reports of adverse COVID-19 vaccine-related events, exceeding all reports over the previous 30 years combined [275]. While some dismiss this as a mass vaccination phenomenon one number speaks for itself: 23,615 deaths. In practical terms, this is equivalent to one jumbo jet falling out of the sky per week. Given what we have reviewed regarding the performance of the mRNA vaccines it is arguable whether they have prevented anywhere near this number of deaths. When an airline disaster occurs it too is a tiny fraction of the total number of flights in the sky but it would never be dismissed as insignificant. In the case of mRNA vaccines, one would also hope for a zero-tolerance policy as in the airline industry. In the numerous drug-induced mass casualty events of the 20th century even smaller numbers than those seen with these vaccines prompted withdrawal of offending agents from the market. The traditional 5/50 rule of thumb holds that if there are 5 deaths associated with a drug, vaccine, or device then a black box warning is issued; if there are 50 deaths the product is removed from the market. Why has this rule been overlooked in the case of mRNA vaccines?

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VAERS data over the same period reported 127,855 hospitalizations, 118,076 urgent care visits, 171,408 doctor office visits, 9,119 episodes of anaphylaxis, 13,784 cases of Bell's palsy, 3,991 miscarriages, 12,069 heart attacks, 32,476 cases of myocarditis, 42,260 permanently disabled, 5,551 cases of thrombocytopenia, 12,346 cases of shingles, 39,440 severe allergic reactions, and 26,836 other life-threatening complications. And yet oversight bodies such as the ACIP continue to claim that the risk for such events is outweighed by the benefits. By whose reckoning? The mRNA vaccines begin to look very much like an experiment gone awry.

Simply because VAERS data has no denominator does not mean one cannot make a reasoned assessment of the relative risk of the mRNA vaccines. This is easily done by comparing adverse event rates of the COVID-19 vaccines to those of influenza vaccines. The comparison is apropos since, like mRNA vaccines, flu vaccines are seasonally administered to broad segments of the population through mass vaccination. In 2011 the CDC reported 8200 adverse events to the trivalent influenza vaccine based on 163 million distributed doses which equates to an adverse event rate of about 0.005% or 5 per 100,000 [276]. By early February 2022 VAERS had reported 1,103,891 adverse events based upon 547,109,724 administered doses equating to 0.201% or 201 per 100,000, about a 40-fold increased risk (Chi-squared 148.5, $p< 0.0001$). This cannot be dismissed as insignificant.

Using a similar historical approach, we compared COVID-19 vaccine-related adverse event reports to other vaccines such as influenza and pertussis and examined outcomes including total deaths, **(Figures 3-4)** menstrual abnormalities, **(Figures 5-6)** fetal malformations, **(Figures 7-8)** and pregnancy losses **(Figures 9-10)**. In all cases there were highly significant increases in risk for the COVID-19 vaccines compared to all others. All P values are less than 0.0001 as per Chi Square analysis. The analytics are extremely robust so even large changes in the assumptions will have little impact on statistical divergences.

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Figure 3

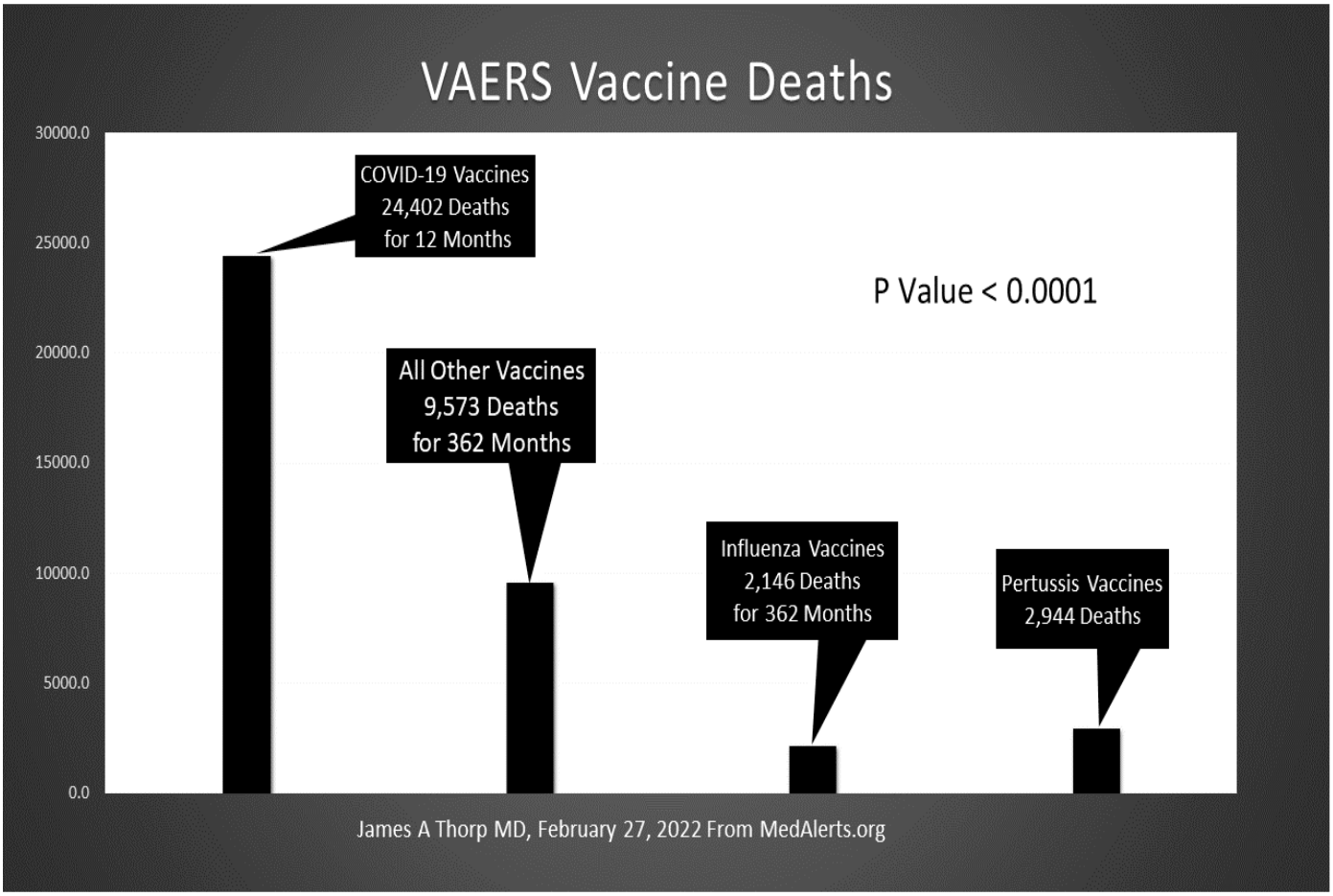
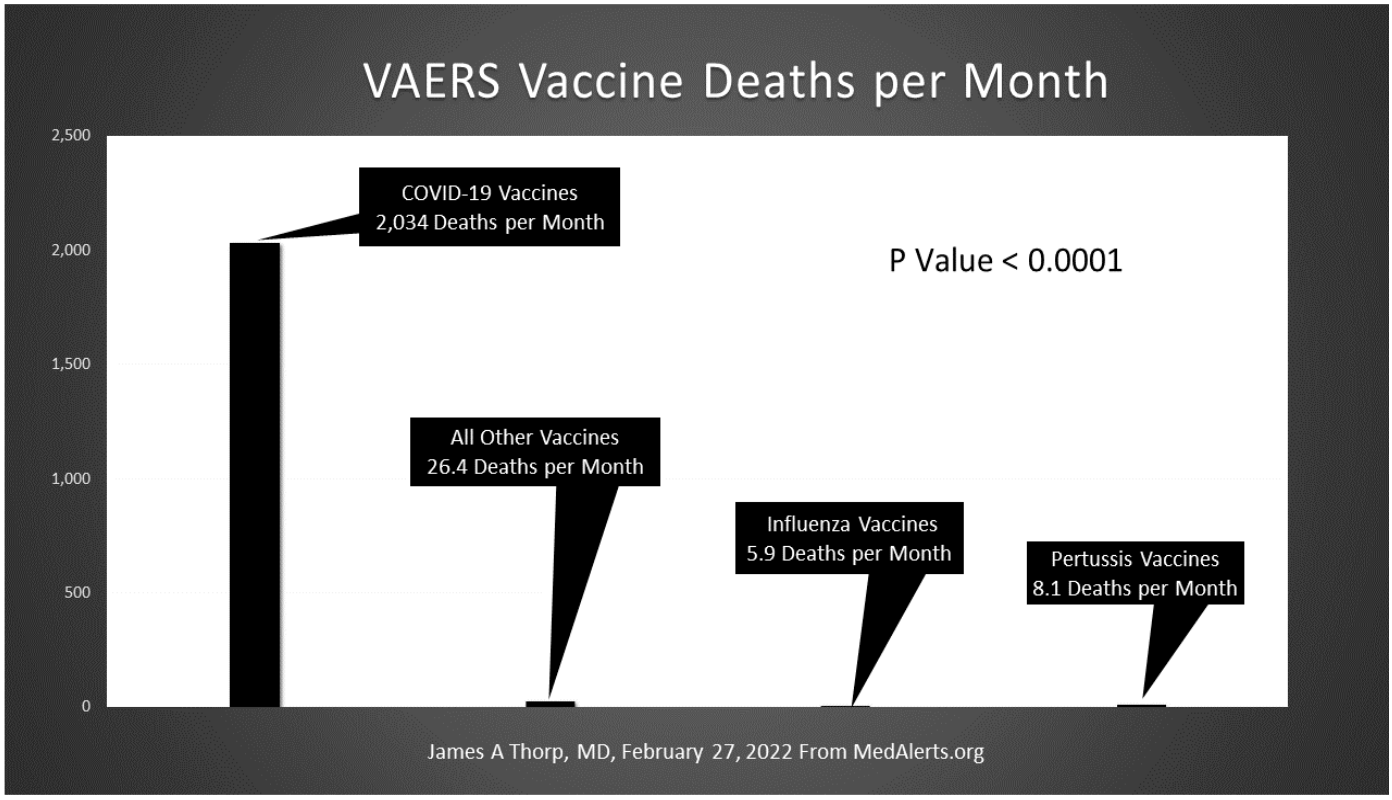


Figure 4



Figures 3 and 4 are VAERS total deaths for total time and deaths per month from MedAlerts.org.

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Figure 5

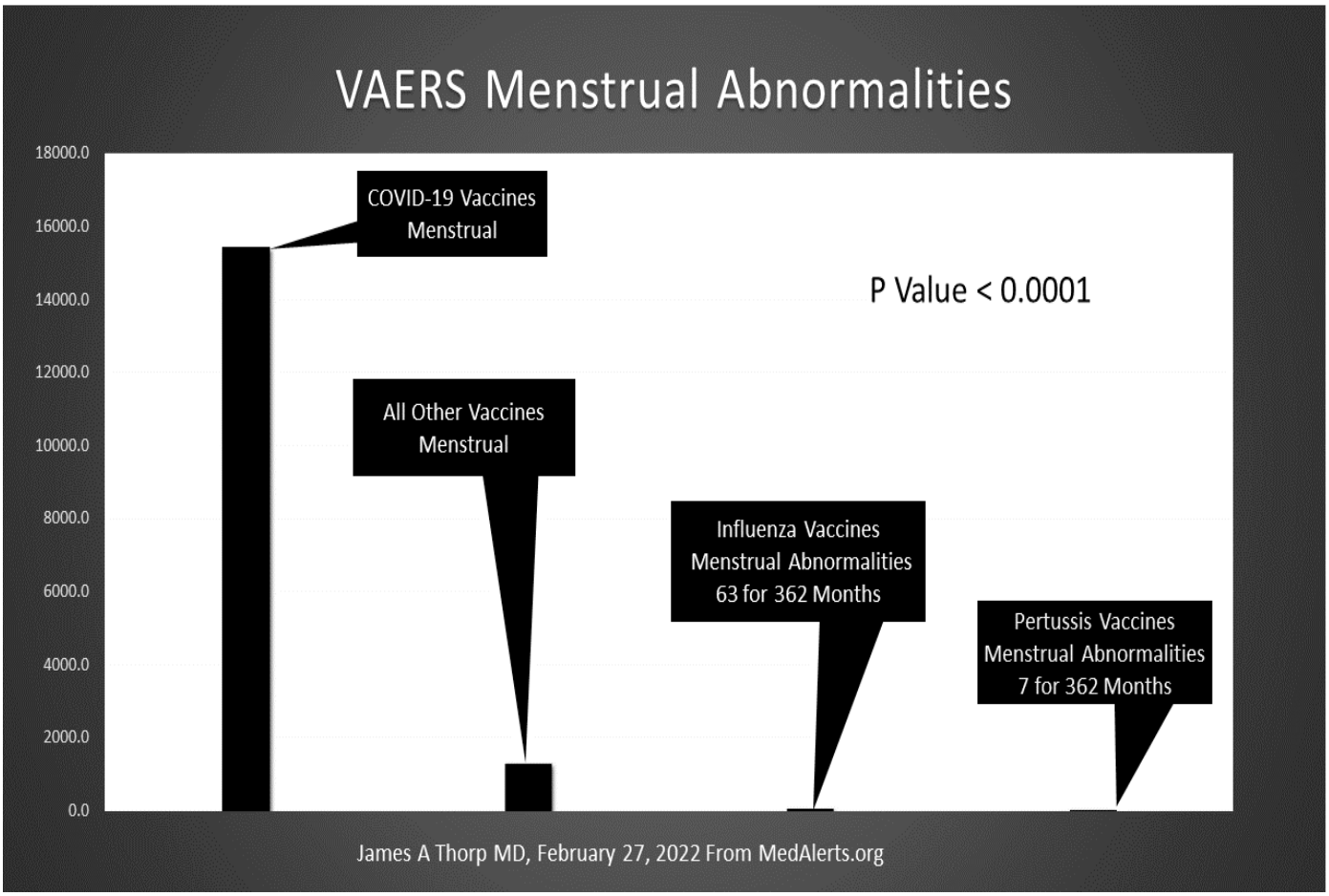
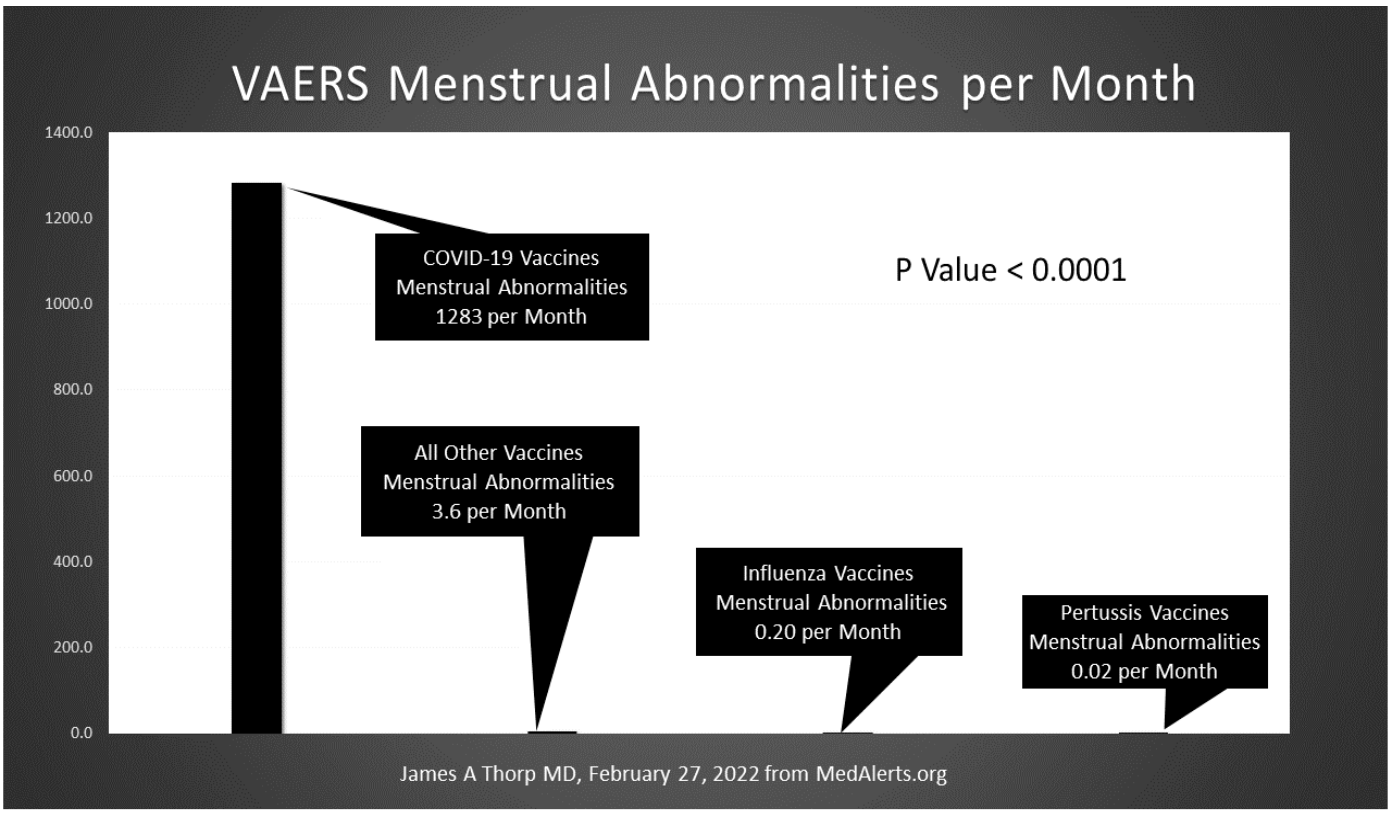


Figure 6



Figures 5 and 6 are VAERS menstrual abnormalities for total time period and indexed by month from MedAlerts.org.

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Figure 7

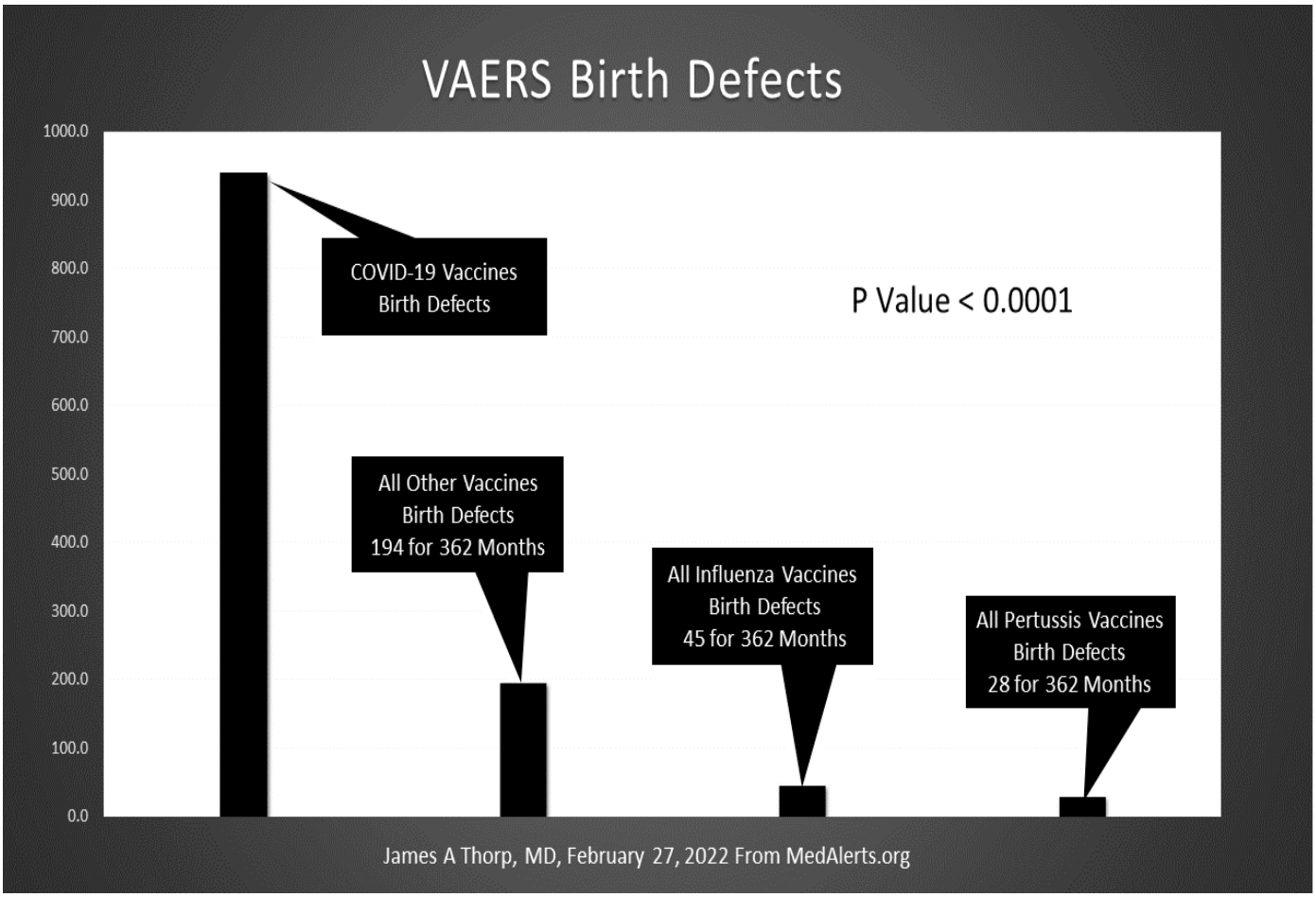
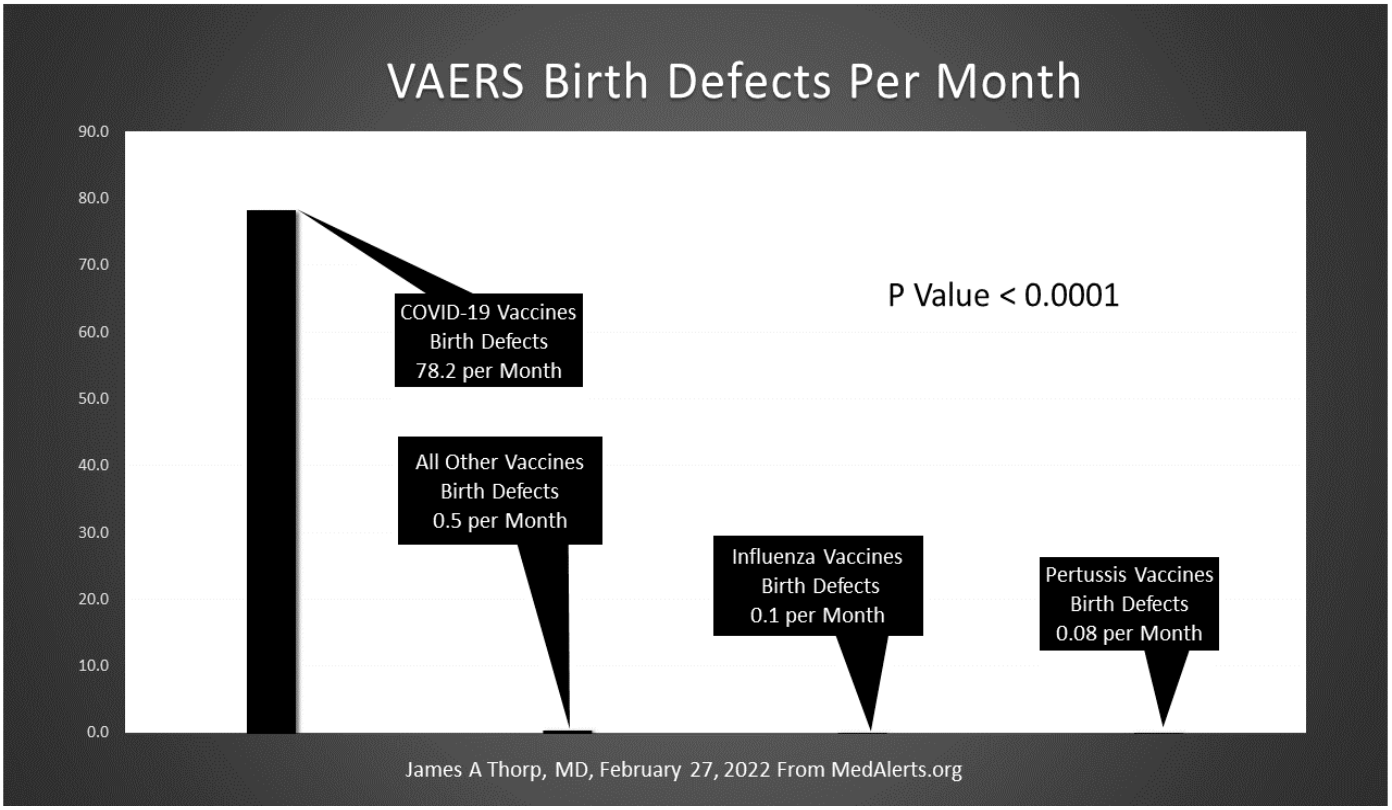


Figure 8



Figures 7 and 8 are VAERS birth defects for total time period and indexed by month from MedAlerts.org.

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Figure 9

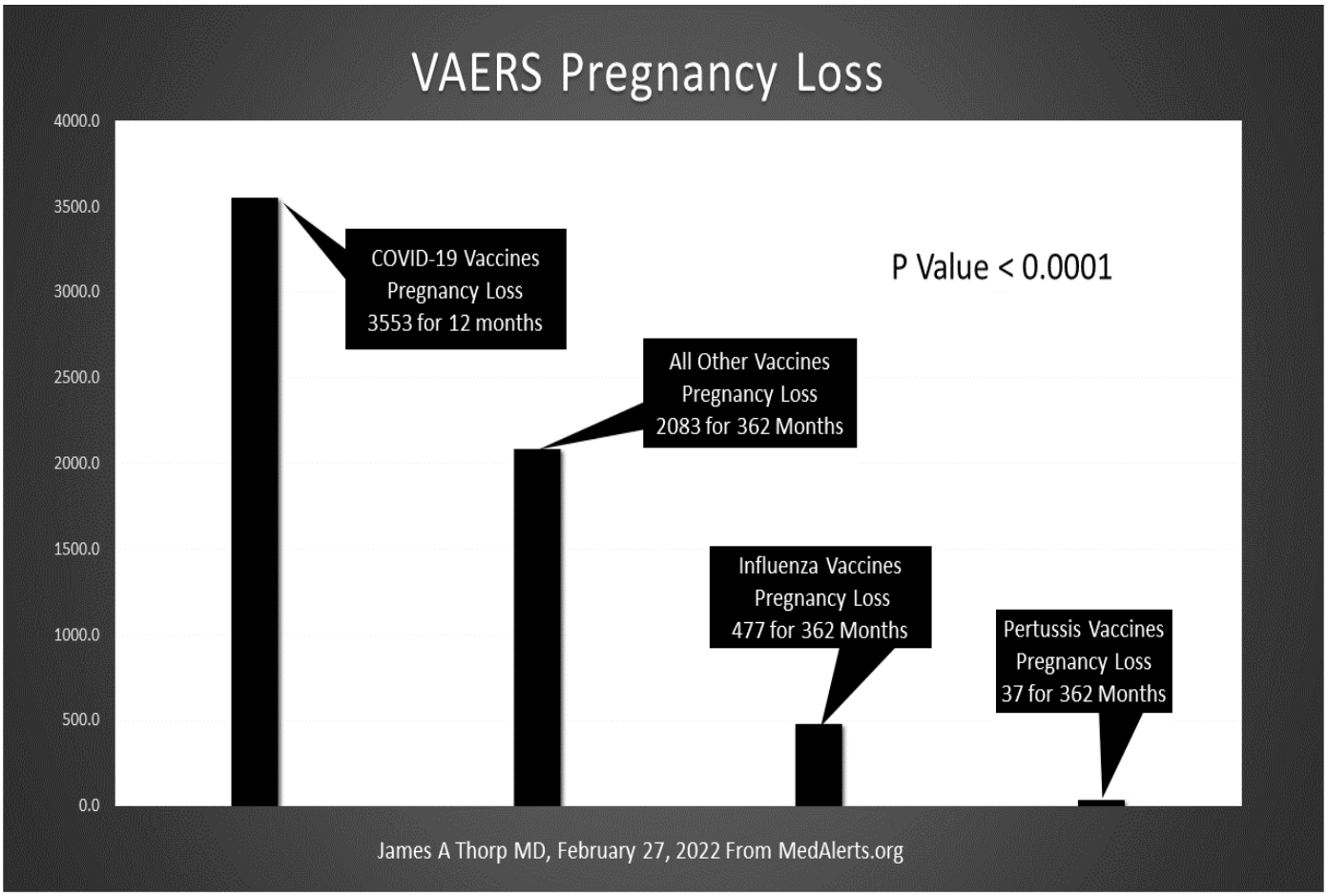
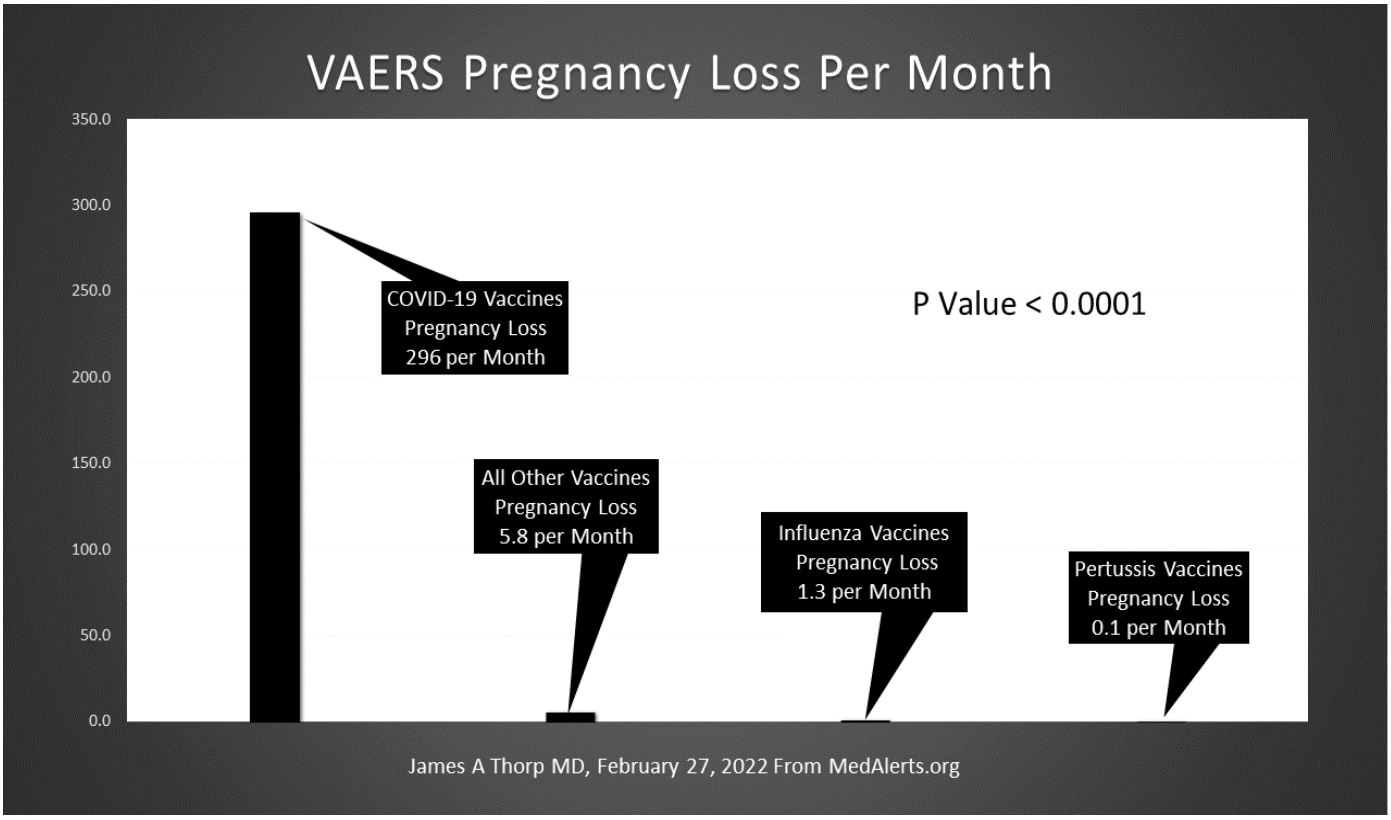


Figure 10



Figures 9 and 10 are VAERS pregnancy loss for total time period and indexed by month from MedAlerts.org.

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In spite of the numerous red flags, large populational studies published in 2021 found no evidence for pregnancy-related safety concerns or potential risks and determined them to be safe for use during pregnancy [277-279]. The role of such oversight bodies is to assess potential risk on the basis of credible evidence. Given the VAERS data how much more data is needed?

As a result of such recommendations governing boards of various medical specialties, such as the American Board of Medical Specialties (ABMS), Federation of State Medical Boards (FSMB) and American Board of Obstetrics and Gynecology (ABOG) and the American Association of Colleges of Nursing (AACN) have declared the vaccines safe for use in pregnancy. And in an attempt to quash backlash from members they issued what amounts to a gag order prohibiting the spread of vaccine 'misinformation' by practitioners in the various specialties. But from where does such misinformation originate? And at what point does misinformation become disinformation?

By September, 2021 the Medicines and Healthcare Products Regulatory Agency (MHRA) yellow card surveillance program in the UK had received over 30,000 reports of menstrual cycle disturbances on the heels of vaccination [280-282]. Similar reports appeared in VAERS. Adverse events include interruption or delay of the menstrual cycle, breast pain and swelling, heavy menstrual bleeding (in some cases precipitating hospitalization), post-menopausal bleeding, pregnancy-related sub-chorionic hemorrhage, and fetal demise. MHRA concluded that based on the small number of reports relative to the vaccination rate a causal link between the two could not be established. Simply because the incidence rate of events falls below an arbitrary threshold does not indicate there is no relationship.

We already know the mechanism: widespread endothelial inflammation. Instead of attacking the brain, heart, or lungs, in women the ovaries, uterus and placenta become targets of runaway inflammation. In the ovaries this explains alterations in the menstrual cycle; inflammation in the uterus and vagina accounts for dysfunctional bleeding; placental inflammation has been associated with placental insufficiency, fetal growth restriction, fetal malformations, preeclampsia, fetal demise, preterm labor, and abnormal childhood developmental outcomes at 2 years [283-285]. Pregnant women administered the COVID-19 vaccine are known to develop an immunogenic response with vaccine-elicited antibodies in umbilical cord blood as well as breast milk [286]. No matter how small the subset of women who develop such post-vaccinal dysfunctions this etiology must always be considered.

Equally troubling is recent FDA approval of COVID-19 vaccines for children [287-288]. This is mind-boggling since, by CDC's own data, the mortality rate in the pediatric age group is only about 0.003% or 3 per 100,000 [289]. What could possibly be gained from such an ill-advised policy? Vaccination does not prevent viral transmission and, in children, infections are nearly always mild. Children are the ideal means by which to reach herd immunity. On the other hand, two years into the pandemic how many children remain unexposed? Vaccination of children only benefits the vaccine manufacturers.

The window of opportunity for the mRNA vaccine project is swiftly closing. Sooner rather than later elusive herd immunity will be reached and all the cards will be on the table. And yet we suspect scientists will continue to try and pull the rabbit out of the hat. At the FDA advisory committee meeting overseeing vaccine approval for children in late October, 2021, Dr. Eric Rubin, Editor in Chief of the *New England Journal of Medicine* commented: 'We're never gonna learn about how safe the vaccine is until we start giving it' [290]. Spoken in a true scientific spirit. Are scientists trying to save the world or conquer it?

Storm clouds continue to swirl around the entire mRNA vaccine enterprise. In November, 2021 *BMJ* published a stunning whistleblower piece by Paul Thacker alleging a rash of improprieties during clinical testing of the Pfizer vaccine including falsification of data, unblinding of subjects, using inadequately trained vaccinators and inappropriate delays in following up on adverse event reports. A director who repeatedly raised concerns over such improprieties was summarily fired and, subsequently, released a large cache of internal documents [291].

Pfizer internal documents obtained through a Freedom of Information Act request by the Public Health and Medical Professionals Transparency Organization were reviewed by physician Daniel Nagase in early December 2021 and seem to substantiate allegations [292]. By late February 2021, over 42,000 case reports had been received detailing 158,893 vaccine-related adverse events. Documents admit significant delays in processing of information and the necessity of hiring additional employees to expedite

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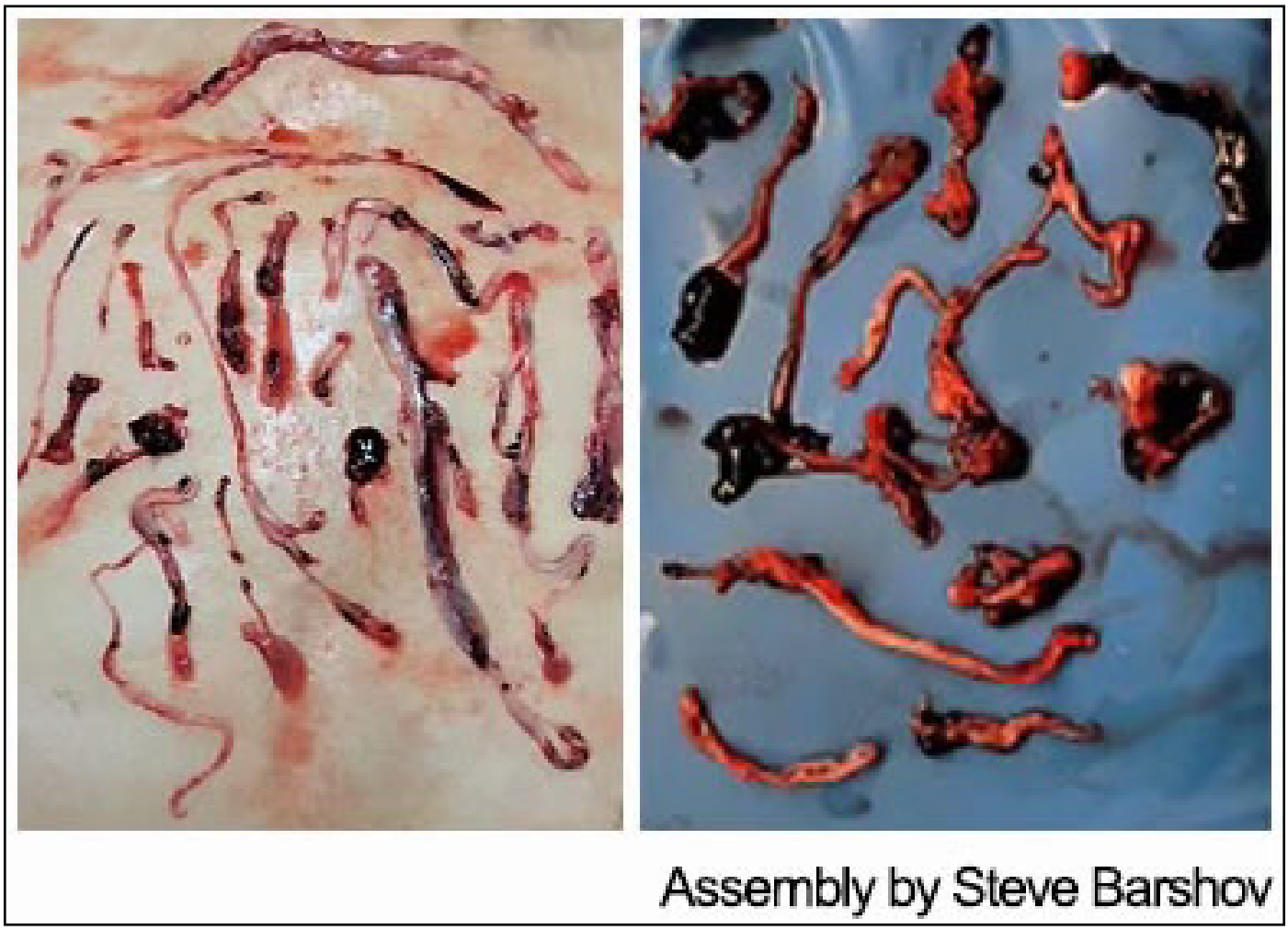
throughput. As of late February, the vaccine had been administered to 274 pregnant women among whom 75 (27.5%) developed serious adverse clinical events. This data was made available to both the FDA and CDC by the end of April, 2021 which, nonetheless, continued to issue glowing safety reports. These are egregious breaches not only of experimental protocol but public safety and trust and cross the line into criminal enterprise. It is likely such issues will continue to reverberate in the public domain long after the pandemic has self-extinguished.

And how have our health care systems weighed in on such issues? Where is the outcry over such disturbing revelations? They continue to publicly stump for mRNA vaccines while choosing to ignore their marginal performance or the fact that they do not impact herd immunity. What happened to the oversight process when people speaking out on vaccine-related issues have been pejoratively dismissed while states like California seek to enforce vaccination by mandate?

Experimental medicine has completely unraveled. And at what point does an intellectual crisis become a moral one?

The ripple effect of the vaccines has spread into unexpected quarters. We spoke at length with an embalmer, one who preserves bodies for ceremonial burial practices, who claims that since introduction of the vaccines he has encountered mortuarial phenomena never before seen in his career. For preparation of bodies a cannula is introduced into an artery in the neck or inguinal region and liquid blood drained through a cannula in the veins. After the COVID-19 pandemic and introduction of mRNA vaccines he observed numerous cases with extensive arterial and venous clot formation. Other embalmers in the US and Europe have described similar phenomena. He sent us pictures of thrombi extracted from decedents (Figure 11). The whitish areas indicate fibrin deposition in older clot material with more recent red clot suggesting ongoing intravascular thrombosis.

Figure 11. Legend: Post-mortem organized thrombi. Courtesy Richard Hirschman.



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A colleague of ours who is in robust health received two doses of the Pfizer vaccine in April 2021 without any attendant side effects. Five months later he developed extensive lower extremity deep vein thrombosis. Tracking tools are only effective for a limited period of time after which long-term effects blend into the statistical background noise. Unless one had specific knowledge of his vaccine history, who would even consider linking the two events? Certainly, neither he nor his physician did. How many latent arterial and venous thromboses, autoimmune phenomena, and other conditions are waiting to express themselves in coming months? We may never know. All we know for sure is that the mRNA vaccines are but messengers of hype.

Ready, Shoot, Aim

A staggering amount of misinformation, reversal of opinion and back-pedalling has issued from the science community during the pandemic years: first facemasks weren't necessary, then they were, then no longer; lockdowns were not effective but became mandated and later found to be punitively ineffective; stimulating antibody production would confer long-term immunity but never did; mRNA vaccines would put a quick end to the pandemic by preventing viral transmission and inducing immunity but didn't; no one can say anymore with any certainty how effective vaccine protection really is; scientists continue to urge booster jabs even though new variants are resistant; meanwhile daily global caseloads remain at peak levels. And scientists, when put on the spot, continue to reply, 'This is what we know . . .' The babble is towering.

If it seems like a recipe for disaster don't get too disturbed: primary infections in the unvaccinated and breakthrough infections in the vaccinated will eventually lead to herd immunity. At this point in the pandemic there is light at the end of the tunnel. As evidence continues to pour in we are led to one inescapable conclusion: the dynamics of the pandemic, like all pandemics before it, function solely through viral infectivity and virulence in conjunction with individual susceptibility. None of the social or medical interventions employed to date have favorably altered its trajectory even an iota.

Aside from the loss of countless lives and the inestimable impact on global social systems, the undreamt great casualty is scientific credibility. At the onset scientists seized the reins and made bold predictions but so far nothing has gone according to script. And yet those who have advocated approaches contrary to the orthodox narrative are regarded as heretics who spread misinformation. From the very beginning, the handling of the pandemic has been less about fact and more about perspective—the scientific perspective.

To the contrary, given evidence we presented regarding lockdowns and mRNA vaccines, a large excess of morbidity and mortality can be ascribed to interventions advanced by the scientific community. In the next chapter we examine the path not taken: a handful of strategies which, had they been implemented in a timely manner, could have prevented the overwhelming majority of serious COVID-19 cases and deaths. Other voices must now be heard.

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